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OBSERVATIONS UPON
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PROFCTOR TO THE

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* H. N. S.
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OBSERVATIONS UPON PRESBYTES ALBIGENA, GRAY, AND
COLOBUS GUEREZA, RÜPPELL. BY JAMES MURIE, M.D.,
PROSECTOR TO THE SOCIETY.

The distinctive relation of the group of Indian Monkeys first generically arranged by M. Fréd. Cuvier* under the name of *Semnopithecus*, chiefly upon the essential character of a quinquecuspidate posterior molar, has been subsequently, and on better grounds, confirmed by the dissections of M. Otto† and Prof. Owen‡, who have described the very peculiar sacculated condition of the stomach belonging to this genus.

Another group of African Monkeys, *Colobus*, Illiger§, separated on account of the rudimental development of the thumbs of the anterior extremities, illustrated in species by Ogilby|| and other authorities, has also been shown by Prof. Owen¶ in one species, the *Colobus ursinus*, Ogilby, to possess a pouched stomach and other viscera almost identical with that of *Semnopithecus entellus*.

In the 'Proceedings' of this Society for 1850, p. 77 and plate xvi., Dr. Gray defines and figures what he considers a new species of *Semnopithecus* (supposed to have come from West Africa) under the designation *Presbytis albigena*. This, in external appearance, bears

* 'Histoire Naturelle des Mammifères,' &c., livr. 30.

† Zoological Journal, vol. iii. p. 249.

‡ Transactions Zool. Soc. vol. i. p. 65.

|| P. Z. S. 1835, p. 97.

§ Prodomus Syst.

¶ P. Z. S. 1841, p. 84.

resemblances to *P. obscurus*, although it is more like *P. melalophus*, but differing from this in being black, and, as he says, "can scarcely be a black variety of that species."

There was some doubt as to the African habitat of this new species, until M. du Chaillu brought home some skins of the animal from Gaboon, which cleared up that point. In remarking upon these specimens, a writer in the 'Natural History Review' * expresses doubts as to the propriety of the species being classed along with the genus *Presbytes*. The writer remarks—"Now that its African habitat is fully established, a more accurate examination will probably show the necessity of removing this Monkey from the Asiatic group *Presbytes*, with which it has been hitherto arranged."

To a certain extent this has already been done, although clear reasons, so far as I am aware, have never been given. The stuffed skin of the typical specimen, mentioned above, is at present in the British Museum, marked *Presbytes albigena*, Gray; but the skull of the same I find, on reference to the published 'Catalogue of Bones of Mammalia,' 1861, p. 14, to be named *Cercocebus albigena*.

A specimen of this rather rare creature having lately died at the Society's Gardens, my attention has been called to its greater affinities with *Cercocebus* than that of *Semnopithecus* (*Presbytes*). The animal in question was a female from Africa, about half-grown, and sent on approval by Mr. Cross, dealer, Liverpool. It lived in the Gardens for a period of two months, and died the latter end of October (1865). From the first it was weakly and delicate, but took its food tolerably well.

As the creature was apparently younger than the typical specimen described by Dr. Gray, it may be worth while noting the differences. His description of colour and general appearance agrees closely; but in the present one the throat, sides of neck, and front of chest were not quite greyish, but rather of a dirty-brown colour; hair of the cheeks also of the same shade, some of them black and not greyish; iris yellowish brown, pupil dark blue.

The following are the dimensions, as taken after death:—

	inches.
Length, body, back of neck to root of tail	11
——, tail	22½
——, head, muzzle to occiput	6½
——, head, muzzle to base of ear in straight line	3
——, head, across cranial vault to meatus	5½
——, arm, shoulder-joint to wrist	8½
——, palm of hand to tip of fingers	3½
——, leg, trochanter to ankle	9½
——, sole of foot, heel to tip of third toe	5
——, ear, from above downwards	1½
——, ear, from before backwards	¾

* "The Fauna of Equatorial Africa" (N. H. R. 1861, p. 292), being a critical review, chiefly based upon the works of the traveller M. P. B. du Chaillu and of the naturalist Dr. G. Hartlaub of Bremen.

Post-mortem examination disclosed death to have been caused by tuberculous disease, which affected the peritoneum, intestines, spleen, portions of the left kidney and stomach, which were partly agglutinated together, preventing a minute anatomical investigation of these organs; but the stomach to all appearance seemed simple, and without the sacculi peculiar to *Semnopithecus* and *Colobus*—so far, therefore, distinct from either of these genera.

I have compared the skull of the adult type specimen of *Presbytes albigena* with the series of crania in the British Museum of *Semnopithecus*, *Colobi*, *Cercocebi*, &c.; and the following are my notes respecting them:—

The cranium of *P. albigena* is altogether longer than that of either of the two species of *Semnopithecus*, *S. melalophus* and *S. obscurus*, to which it bears resemblances outwardly, this length being in great part due to the elongation of the face, especially the maxillary and intermaxillary bones. The upper incisors are also in a more horizontal plane. The greater backward extension of the parietal and occipital region also helps to increase the antero-posterior diameter. This difference is best seen in profile. Looking downwards upon the vertex, the parietal region in *P. albigena* is broader, and at the sagittal suture higher than in *S. melalophus* and *S. obscurus*. On the contrary, in these two species the frontal region appears higher than in *P. albigena*, by reason of the parietal flattening in them; their skulls are also more compressed laterally. In *P. albigena* the zygomatic arches are placed nearly in two parallel lines with the sides of the skull; but in *S. obscurus*, *S. melalophus*, and other *Semnopithecus* they are considerably arched.

In these several cranial differences *P. albigena* corresponds to *Cercocebus æthiops* and *C. fuliginosus*, which possess these characters.

In every one of the skulls of the species of *Semnopithecus* in the British Museum the orbits are comparatively wider, rounder, and more staring than in *P. albigena*, which agrees with the *Cercocebi* in this respect. The supraciliary ridges are higher and more marked in *P. albigena*; in the *Semnopithecus* the frontal bone is depressed immediately behind the ridges, which are thinner, projecting slightly forwards.

The nasal bones in the genus *Semnopithecus* are short, nearly straight, and flat; in *P. albigena*, as in the genus *Cercocebus*, they are more elongated; in the latter they are wider inferiorly, in the former relatively somewhat wider superiorly, so that *Semnopithecus* has the widest root of nose. The nasal cavity in all the *Semnopithecus* extends rather higher than the lower margin of the orbit, in *Cercocebus æthiops* and *C. fuliginosus* it does not reach the orbit by as much as the other genus goes above, and in *P. albigena*, while agreeing with these last species, it is even slightly lower. The comparative breadth of the face opposite the two maxillary bones is relatively broadest and more entirely truncated in the *Semnopithecus*, while *P. albigena* again corresponds to the *Cercocebi* in the prognathous and narrower appearance of these bones. Some species of the

genus *Semnopithecus* present a curious character in the remarkable truncation of the occipital region, *S. johui* and *S. maurus* having it nearly perpendicular; this gives the cranium, when resting on the mandible, a curious forward expression. *P. albigena*, like *Cercocebus*, has this part more shelving; *Semnopithecus melalophus* and *S. obscurus* make an approach to this in their contour.

The bony palate in *Cercocebus fuliginosus* and *C. aethiops* is longer and not relatively so broad as in *Semnopithecus*; the length of the premaxillary produces this. *P. albigena* has this character well marked.

The depth of the lower jaw in *Semnopithecus* is greatest, the same only being found in the genus *Colobus*. In the *P. albigena* and *Cercocebus* the angle of the mandible is less perpendicular and more rounded than in *S. melalophus* and *S. obscurus*; in many of the other species of *Semnopithecus*, e. g. in *S. johui* and *S. entellus*, it is even inclined backwards.

The teeth in the several genera spoken of are alike in number. The two inner and upper incisors are very much the largest, and project considerably in the two species of *Cercocebus* examined; they are precisely similar in the specimen of *P. albigena*. The *Semnopithecus* have all the incisors small and of nearly equal size.

In the true species of *Semnopithecus*, as likewise in *Colobus*, the canines, as compared with the other teeth, are considerably larger; in *Cercocebus* and in *P. albigena* they are not so massive. In the last-named genus and species the cusps of the molars are more rounded, while they are acuminate from before backwards in *Semnopithecus* and *Colobus*. The upper penultimate molar in *Cercocebus* and the species under consideration is largest; in all the *Semnopithecus* the molars are more nearly alike in size. *P. albigena* and the *Cercocebi* can hardly be said to possess a fifth cusp in the upper posterior molar; in their lower jaw it is very rudimentary. The lower incisors in *P. albigena* are more horizontally set, and the canines less curved, than in any of the *Semnopithecus*; in this respect, and in the less developed size of the lower incisors, the former corresponds with the genus *Cercocebus*.

The anterior premolar is longest in *Semnopithecus*, while in the adult *P. albigena* and the two species of *Cercocebus* it is rather smaller than the tooth posterior to it.

The skull of the young specimen of *Presbytes albigena*, which has partly been the occasion of the present remarks upon the several genera, shows characters, even in its juvenile condition, which would prevent its being ranked with the genus *Semnopithecus*, although, at the same time, it must be admitted, as might naturally be expected, that the distinguishing prominent points of difference are not so well marked as in the adult skull of the same species. Nevertheless it bears out, though in a less forcible manner, what I have said, as a whole, of its closer resemblance to *Cercocebus* than to *Semnopithecus*.

With respect to the genus *Colobus*, the skulls correspond in every particular to the genus *Semnopithecus*; the three individual skulls of

the former in the British Museum may be said to correspond with their African representatives as follows:—*C. guereza* with *S. entellus*, *C. temminckii* with *S. melalophus* (but not so laterally compressed), while *C. polycomus* may be likened to *S. maurus* or *S. entellus*.

The erania of the *Cercopithec*i in some characters agree with *Cercocebus*, and in others slightly with *Semnopithecus*.

As related to the present subject, I shall introduce some notes I made in January 1863, of the dissection of an adult male specimen of *Colobus guereza*, Rüppell. While at Nyambura, a village in the Moro territory, about sixty miles due west of Gondokoro, on the White Nile, an animal of the above species was shot by one of our party, and on my examining the viscera the following peculiarities were observed:—

Stomach in dimensions:

	inches.
Length of greater curvature about	29
— of lesser curvature about	13
Greatest breadth of organ	6

The viscus, when laid out flat, was of an elongated, somewhat pyriform shape, with many transverse sacculi, as in the first part of the great intestines of the human subject. The cardiac extremity was rotund and expanded; there was a constriction to the left of the œsophagus, about as far distant as was the cardiac end from it; to the left of this constricted part the stomach was much narrower, and the sacculi less in capacity; a third still narrower and more intestinform part stretched to the right of the last, and about equal to it in length. The accompanying diagram, which I lay before the Society, is from a sketch made at the time, and may convey a better idea of the appearance of the organs than a lengthened description.

Small intestines, in length 8 feet $7\frac{1}{2}$ inches; the large intestines, including cæcum, 5 feet 9 inches. Cæcum simple, very like the representation given by Prof. Owen of that of *Semnopithecus entellus*; length $1\frac{1}{2}$ inch, circumference $4\frac{3}{4}$ inches.

The lungs had five lobes on the right side and four on the left; length of each about 7 inches. Pancreas short, with a bifid extremity; length $2\frac{1}{2}$ inches, breadth $1\frac{1}{4}$ inch.

The right and left lobes of the liver were very disproportionate in size, the left being very much the larger of the two.

I omitted to note the relative position of the liver to the stomach *in situ*; but from my sketch of the organ when taken out, it showed that whenever the stomach was distended with food it would press the left lobe of the liver over the much smaller right one, and this overlapping would produce the same irregular position of the liver in the right hypochondriac region as is recorded by Owen in *S. entellus*. The length of the left lobe, in *C. guereza*, was $7\frac{1}{2}$ inches, of the right 4 inches.

First. My observations, though not extensive, may help therefore to bear out the fact that *Presbytes albigena*, Gray, is rather allied to the genus *Cercocebus* (where the skull has already been placed) than to the Indian group *Semnopithecus*, with which it was

originally arranged; so that I consider the animal in future ought to be known by the name of *Cercocebus albigena*. The fresh specimen, moreover, adds to the certainty of its African habitat; but this, since M. du Chaillu's collection has been known, could hardly be disputed.

Secondly. The anatomical examination of *Colobus guereza* corroborates what Owen has recorded of *C. ursinus*, and strengthens belief in the visceral peculiarities belonging to the entire genus. These apparent constant characters, when taken along with those of the cranium and dentition, add wonderfully to the family likeness of the genus *Semnopithecus* and *Colobus*; and it seems that if they are not quite identical they run closely parallel, and are separated more by geographical than by anatomical characters*.

* In ignorance of a short statement of Dr. Puecheran, that he believed the *Presbytes albigena* of Dr. Gray to be a species of *Cercocebus*, I had, while writing the above paper, not consulted this authority. I find, however, that the first-named naturalist, in the 'Revue et Magasin de Zoologie' for June 1857, p. 242, expresses himself as follows as regards this species:—"Présentement cet individu est-il un *Semnopithèque*, comme l'a admis M. Gray, comme paraît l'admettre M. J. A. Wagner? Ce que nous pouvons certifier, c'est que son estomac est simple. Quant à la tête osseuse l'état des sutures atteste un individu encore jeune, et les derniers molaires sont encore renfermées dans leurs alvéoles; mais, nonobstant cette circonstance de jeune âge, le crâne et la face sont plus allongés que dans les têtes des *Semnopithèques* adultes. Par la forme de sa tête osseuse, le *Presbytis albigena* est un *Cercocèbe*."

As I have not assumed the merit of being the first to point out that the Grey-cheeked *Presbytes* of Dr. Gray in reality possessed nearer affinities to the genus *Cercocebus* than to *Semnopithecus*, seeing that I make mention of the typical skull in the British Museum being now placed in the Osteological Collection along with the *Cercocebus* under the name *C. albigena*, I trust that it may not be considered disrespectful towards M. Puecheran that I did not earlier refer to his opinion; but as the volume of the 'Catalogue of the Bones of the Mammalia in the Collection of the British Museum,' published in 1862, contains no reference to Dr. Puecheran's paper, printed in 1857, I believe that I may, to a certain extent, throw the onus on the former publication, which, adopting the newer generic classification of the animal, gives no clue to the more recent authority.

Looking at the matter in a broad light, and with no other desire than the search after truth, I conclude by pointing out that my more detailed comparison of the skull of *Presbytes albigena* with the true Indian *Semnopithecus* endorses the opinion of Dr. Puecheran and the correctness of the present name attached to the cranium in the National Collection.

With regard to the complicated stomach of the genus *Colobus*, I have further to add the testimony of Mr. Flower, that the *C. vellerosus* dissected by him, besides those examined by Professor Owen and the *C. guereza* described in this paper, all point to the certainty of this feature being common to the genus; and therefore, besides the analogy of the cranial character, this undoubtedly marks the *Colobi* and *Semnopithecus* as being but individual members of one group.

